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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,999	02/05/2004	Michael Long	200314456	5380

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EXAMINER

TSIDULKO, MARK

ART UNIT PAPER NUMBER

2875

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/772,999

Applicant(s)

LONG ET AL.

Examiner

Mark Tsidulko

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-13, 15, 16, 21-41 and 49-53 is/are allowed.
- 6) ☐ Claim(s) 1-9, 14, 19, 46 and 48 is/are rejected.
- 7) ☒ Claim(s) 20 and 47 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 07/15
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

The submission of amendment filed on 8/12/2005 is acknowledged. At this point claims 1, 10-12, 14, 21, 27, 28, 29, 31, 32, 37, 38, 49 have been amended, claims 17, 18, 42-45 have been canceled, new claims 52, 53 have been added and the remaining claims left unchanged. Thus, claims 1-16, 19-41, 46-53 are at issue in the instant application.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 46 is rejected under 35 U.S.C. 102(b) as being anticipated by Anderson (US 5,796,526).

Anderson discloses (Fig.3)an optical device for light modulator including a first light source, a second light source and TIR prisms, wherein light sources produce the light of different colors (col.5, lines 52-56).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moss et al. (US 6,341,876) in view of Brake (US 4,322,128).

Referring to Claim 1 Moss et al. disclose (Fig.7) an illumination system having two light sources [701] and [703], two TIR prisms [709] and [711] and a light integrator rod [705] disposed to collect and homogenize light exiting from the prisms (col.7, lines 34-44). Moss et al. disclose (Fig.7) that hypotenuse reflective surfaces of the prisms [709] and [711] are not located on an optical axis of the system, which is passed along the integrator [705]. The light exits the system along this axis.

Moss et al. discloses the instant claimed invention except for coating.

Brake discloses (col.4, lines 67, 68; col.5, lines 1-3) a prism wherein hypotenuse reflective surface has an aluminized coating which is a high-reflective, as well known in the art. Also, it is clearly understood, that since Brake discloses the AR coating for TIR prism, any desired surface of the TIR prism can be coated with AR coating depending on necessity.

Referring to Claim 2 Moss et al. disclose (Fig.7) an illumination system having two light sources [701] and [703].

Referring to Claim 3 Moss et al. discloses the instant claimed invention except for coating.

Brake discloses (Fig.7, col.4, lines 67, 68; col.5, lines 1-3) a prism wherein hypotenuse reflective surface has an aluminized coating which is a high-reflective, as well known in the art. Also, it is clearly understood, that since Brake discloses the AR coating for TIR prism, any desired surface of the TIR prism can be coated with AR coating depending on necessity.

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Referring to Claims 4, 6 Moss et al. disclose integrator having a light tunnel with reflective surfaces (Col.4, lines 20, 21).

Referring to Claim 7 Moss et al. disclose a light pipe (col.1, line 44).

Referring to Claim 8 Moss et al. disclose (Fig.7) a solid conducting rod [705].

Referring to Claims 9 Moss et al. disclose (Figs. 5, 7) an integrating device having a condenser lens [23], [703].

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the aluminized coating, as taught by Brake for the prism of the device of Moss et al., in order to improve the reflectivity.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moss et al. and Brake, as applied to claim 4 above, and further in view of Potekev et al. (US 6,419,365).

Moss et al. discloses the instant claimed invention except for rectangular tunnel.

Potekev et al. disclose a rectangular integrating tunnel [44] used for obtaining uniform illumination brightness (col. 5, lines 2-8).

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the light integrator of Moss et al. having a rectangular integrating tunnel, as taught by Potekev et al., in order to improve illumination.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moss et al. and Brake, as applied to claim 1 above, and further in view of Anderson (US 5,796,526).

Moss et al. discloses the instant claimed invention except for a plurality of TIR prisms disposed along an optical axis and a plurality of light sources.

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Anderson discloses (Fig.3) a plurality of TIR prisms disposed along an optical axis and a plurality of light sources. This structure allows to increase an illumination of the device.

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the a plurality of TIR prisms disposed along an optical axis and a plurality of light sources, as taught by Anderson, for the device of Moss et al. in order to increase an illumination of the device.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US 5,796,526). This reference discloses structure of the device but do not disclose a method of correcting a color of a light source. It would have been obvious to one having ordinary skill in the art, at the time the invention was made to take the steps of apparatus above and provide a method of correcting a color since a prior art of record teaches or suggests a means of correcting a color of a light source.

Anderson discloses (Fig.3) an illumination optics for a light modulator including a light emitting from a first light source into a TIR prism, a light emitting from a second light source into a TIR prism, wherein the lights have different colors (col.5, lines 52-56).

Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US 5,796,526) in view of Moss et al. (US 6,341,876).

Anderson discloses the instant claimed invention except for means for homogenizing the light exiting from the TIR prism.

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Moss et al. disclose (Fig.7) a light integrator for homogenizing the light exiting from the TIR prism.

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the light integrator, as taught by Moss et al. for the device of Anderson, for the purpose of homogenizing the light exiting from the TIR prism.

***Allowable Subject Matter***

Claims 20, 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Referring to Claims 20, 47 the prior art of record fails to show a method of correcting a color of a light source wherein the first light source is a projection lamp and the second light source is a red light source.

Claims 10-13, 15, 16, 21-41, 49-53 are allowed.

The following is an examiner's statement of reasons for allowance:

Referring to Claim 10 Referring to Claims 10, 27, 37 the prior art of record fails to show a plurality of optical elements optically coupled and have an optical axis, a TIR prism formed at an interface between two of the optical elements and a light integrator disposed behind the TIR prism.

Referring to Claims 11, 12, 28, 38 the prior art of record fails to show a plurality of TIR prisms disposed along an optical axis, wherein each subsequent prism has a steeper angle than a

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previous TIR prism along the axis and a light integrator disposed behind the plurality of TIR prisms.

Claim 52 is allowed as claim depended on claim 11.

Claims 13, 53 are allowed as claim depended on claim 12.

Referring to Claim 15 the prior art of record fails to show a plurality of TIR prisms disposed along an optical axis, a second plurality of TIR prisms, each of which is disposed adjacent to and optically coupled to one of the first plurality of TIR prisms.

Claim 16 is allowed as claim depended on claim 15.

Referring to Claims 21, 49 the prior art of record fails to show a light integrating system having a TIR prism disposed along an optical axis and a reflector disposed along same optical axis and reflecting a light from TIR prism back through the prism.

Claims 22-26 are allowed as claims depended on Claim 21.

Claims 50, 51 are allowed as claims depended on Claim 49.

Referring to Claim 29 the prior art of record fails to show a first set of light sources disposed along one side of the plurality of TIR prisms and a second set of light sources disposed along an opposite side of the plurality of TIR prisms.

Claim 30 is allowed as claim depended on claim 29.

Referring to Claim 31 the prior art of record fails to show a light integrating system having a first plurality of TIR prisms disposed along an optical axis and a second plurality of TIR prisms each of which is disposed adjacent and optically coupled with one of the first plurality of TIR prisms, and two light sources disposed with each of the second plurality of TIR prisms.



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Claims 33-36 are allowed as claims depended on Claim 31.

Referring to Claim 32 the prior art of record fails to show system having first plurality and a second plurality of the TIR prisms and two light sources disposed with each of the second plurality of TIR prisms, wherein each of the second plurality of prisms receives and integrates light from two light sources.

Referring to Claim 39 the prior art of record fails to show a light projecting system wherein the first light source is a projection lamp and the second light source is a colored light source.

Claims 40, 41 are allowed as claims depended on Claim 39.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

Applicant's arguments filed 8/12/2005 have been fully considered but they are not persuasive.

Regarding Claim 1 Applicant argues that Brake teaches applying a coating to the hypotenuse surface of the prism which is on the optical axis of the system.

In response, the Examiner would like to direct Applicant's attention to the fact, that hypotenuse reflective surfaces of the prisms [709] and [711] are not located on an optical axis of

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the system. The optical axis of the system is passed along the integrator [705]. Integrated light exits the system along this axis.

Also, it is clearly understood, that since Brake discloses the AR coating for TIR prism, any desired surface of the TIR prism can be coated with AR coating depending on necessity.

Regarding Claims 19 and 46 Applicant's arguments have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Anderson (5,796,526).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Tsidulko whose telephone number is (571)272-2384. The examiner can normally be reached on 8 - 5.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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M.T.  
August 23, 2005



**JOHN ANTHONY WARD**  
**PRIMARY EXAMINER**